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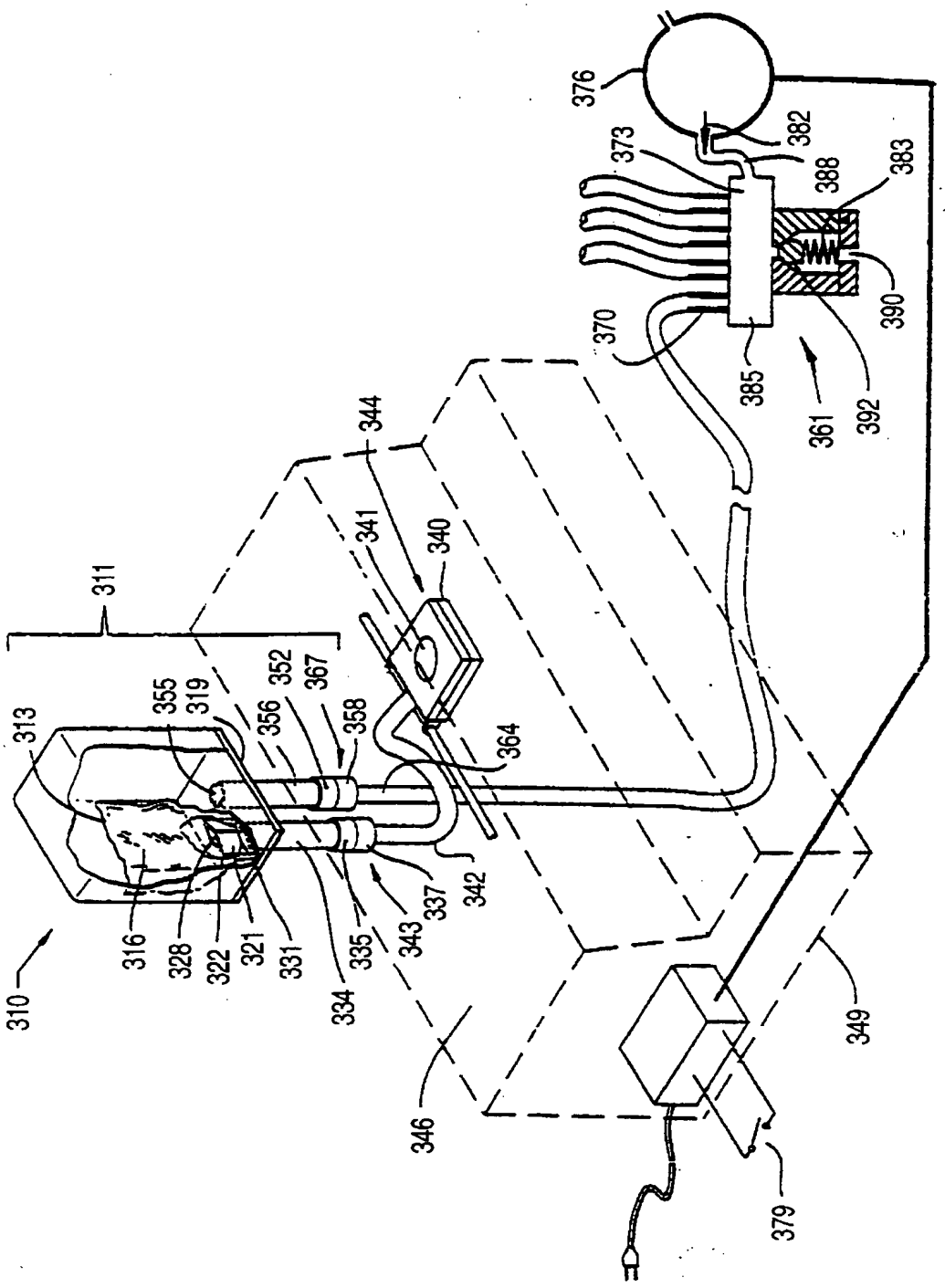


FIG. 1A

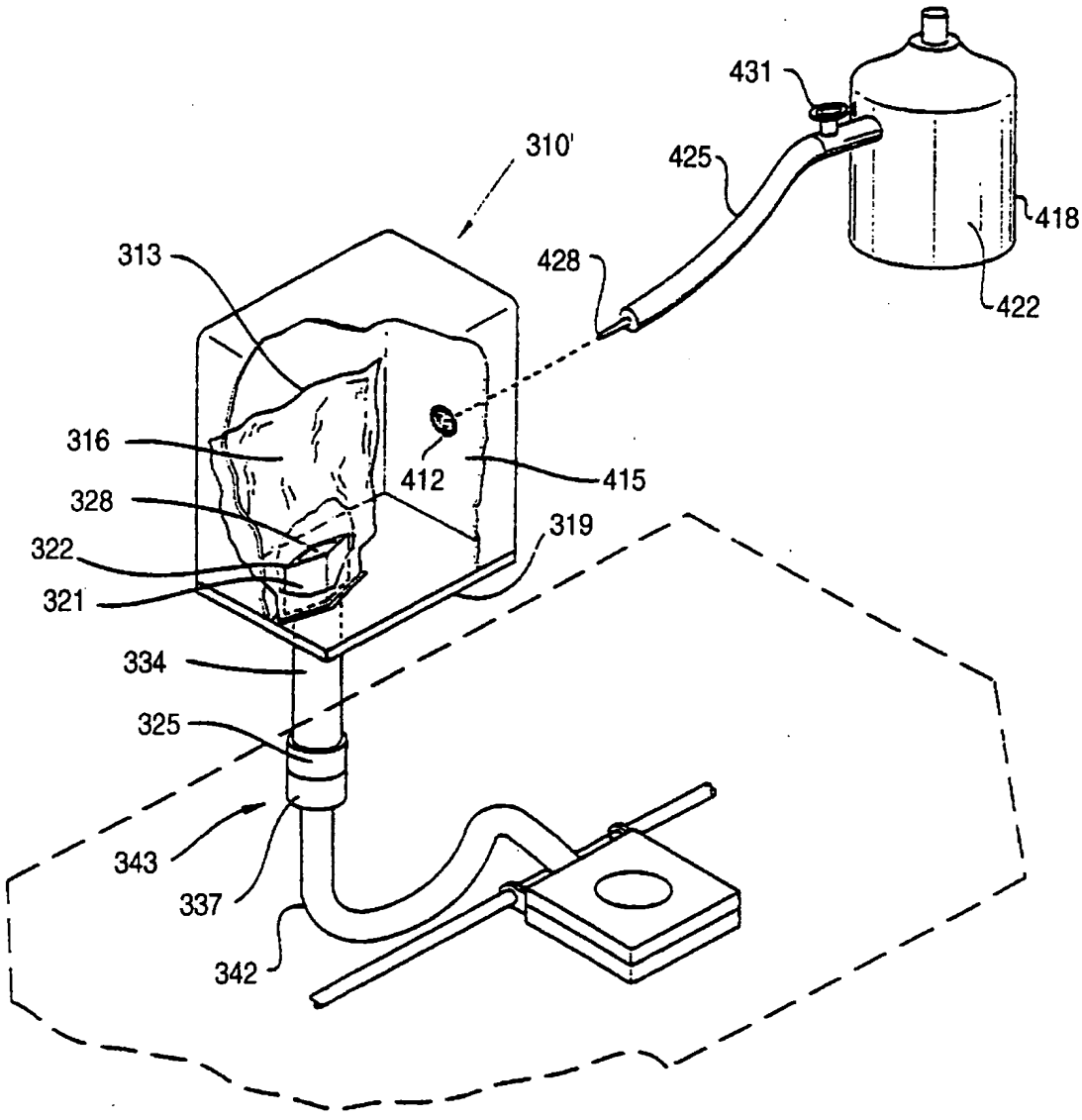

431
310'
425
418
313
428
422
316
412
415
328
319
322
321
334
325
343
337
342

FIG. 1B

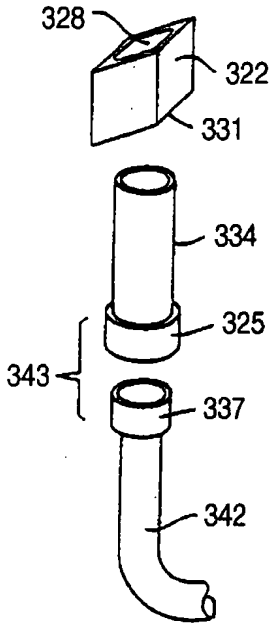


FIG. 2A

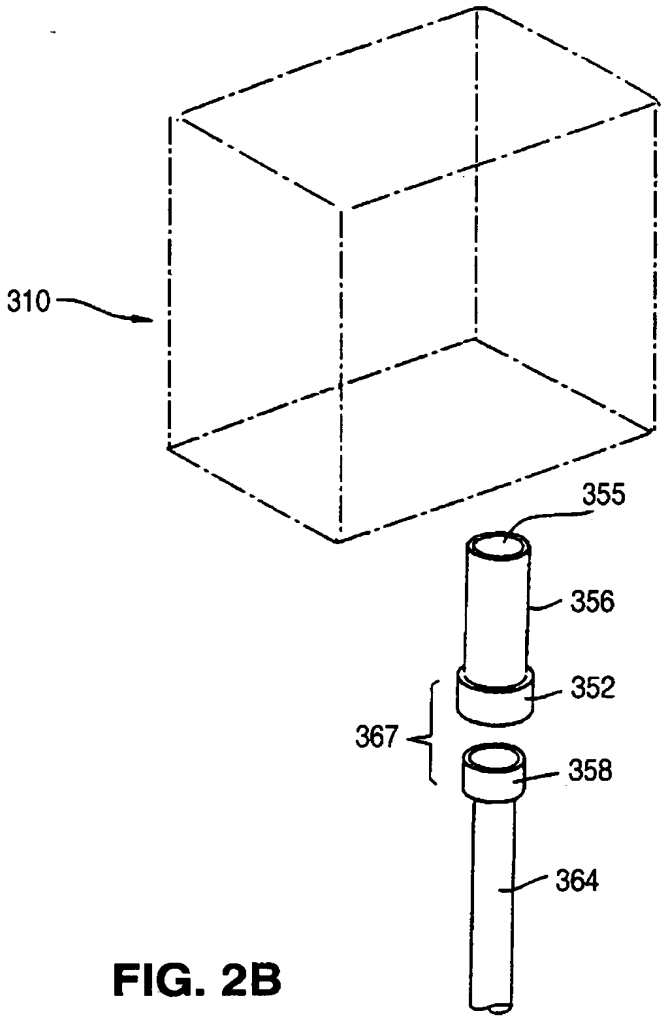


FIG. 2B

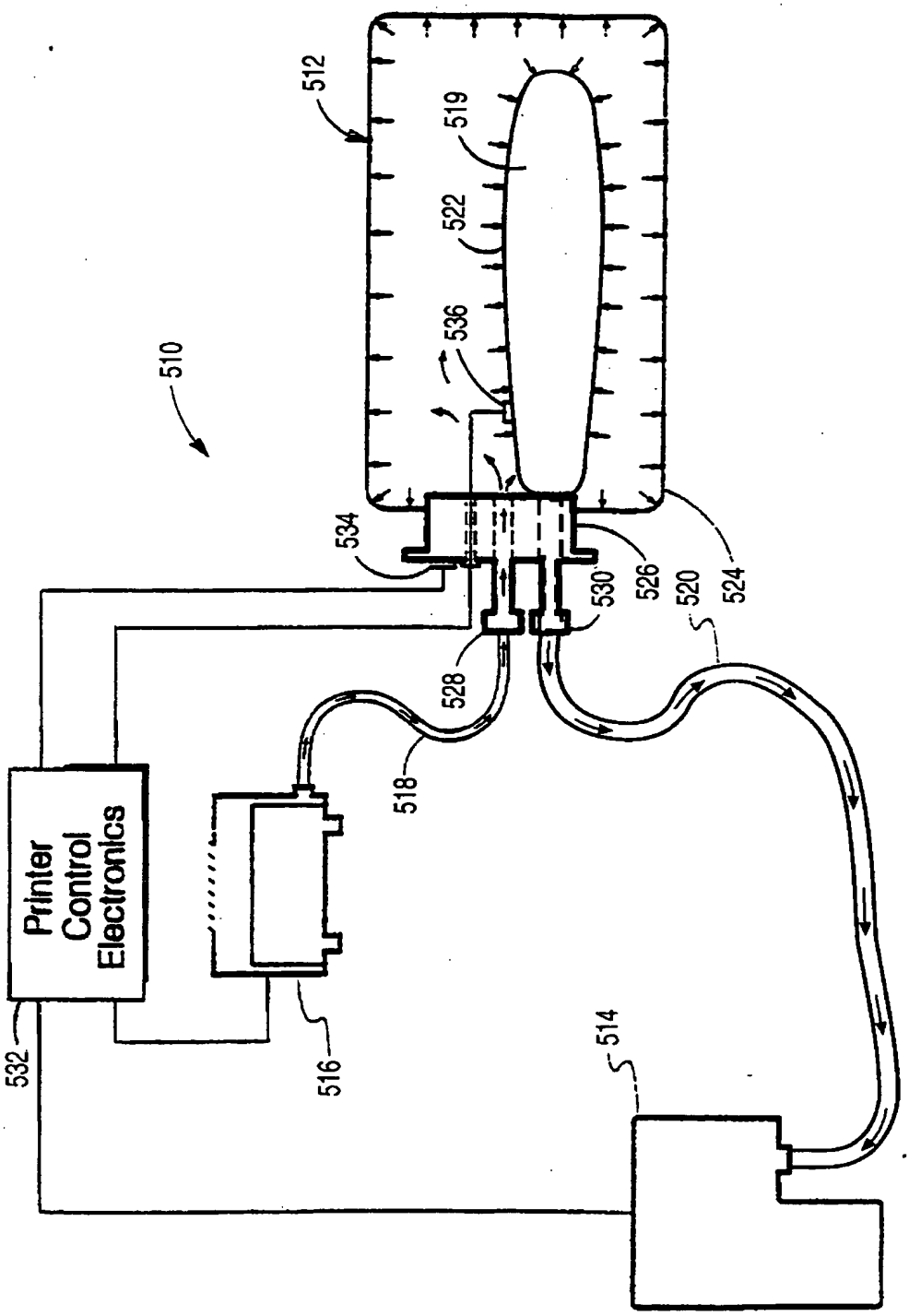

Printer Control Electronics
510
512
514
516
518
519
520
522
524
526
528
530
532
534
536

FIG. 3

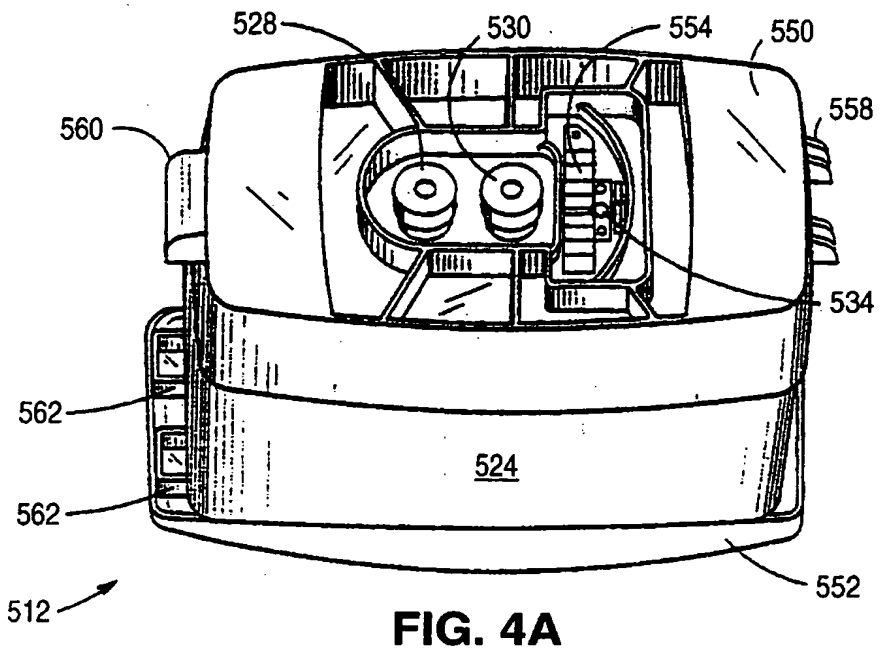

528
530
554
550
558
560
534
562
524
562
552
512

FIG. 4A

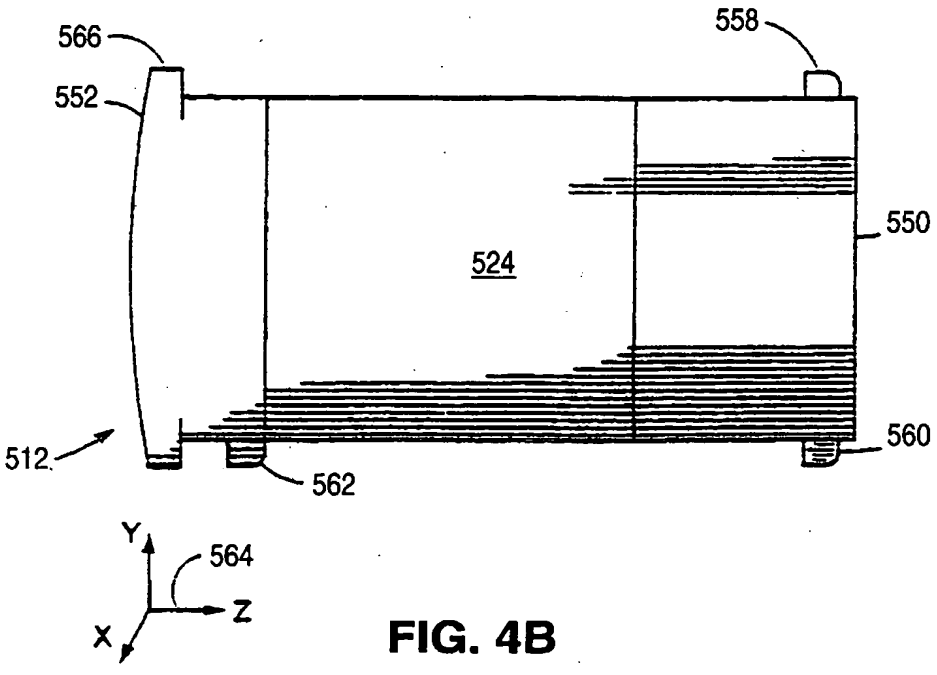

566
558
552
524
550
512
562
560
Y
564
Z
X

FIG. 4B

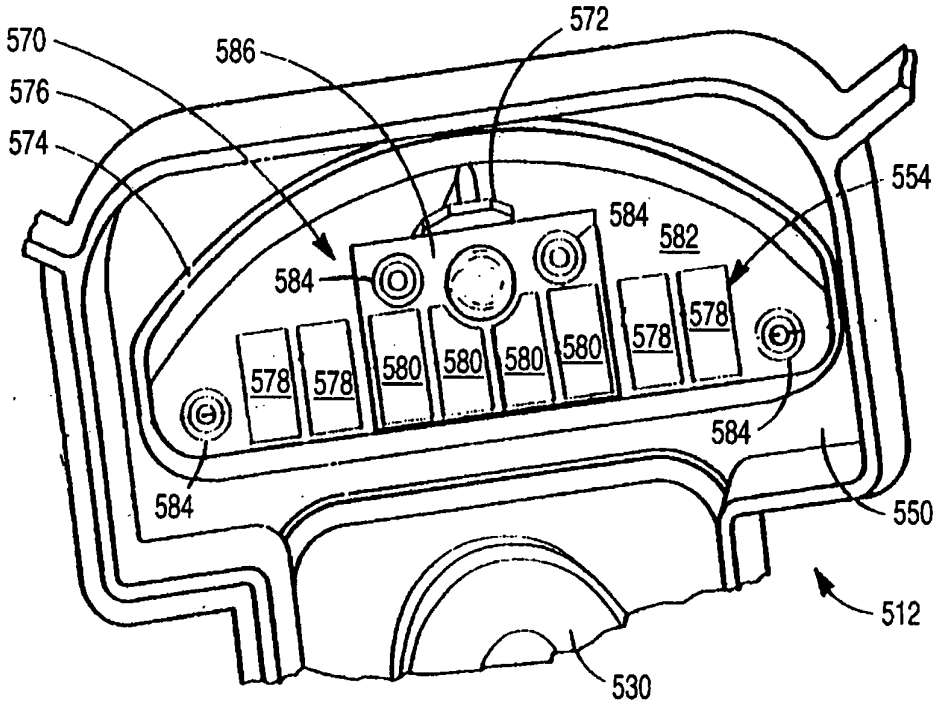

570
576
574
586
572
554
584
582
584
578
578
580
580
580
580
578
578
584
584
550
512
530

FIG. 4C

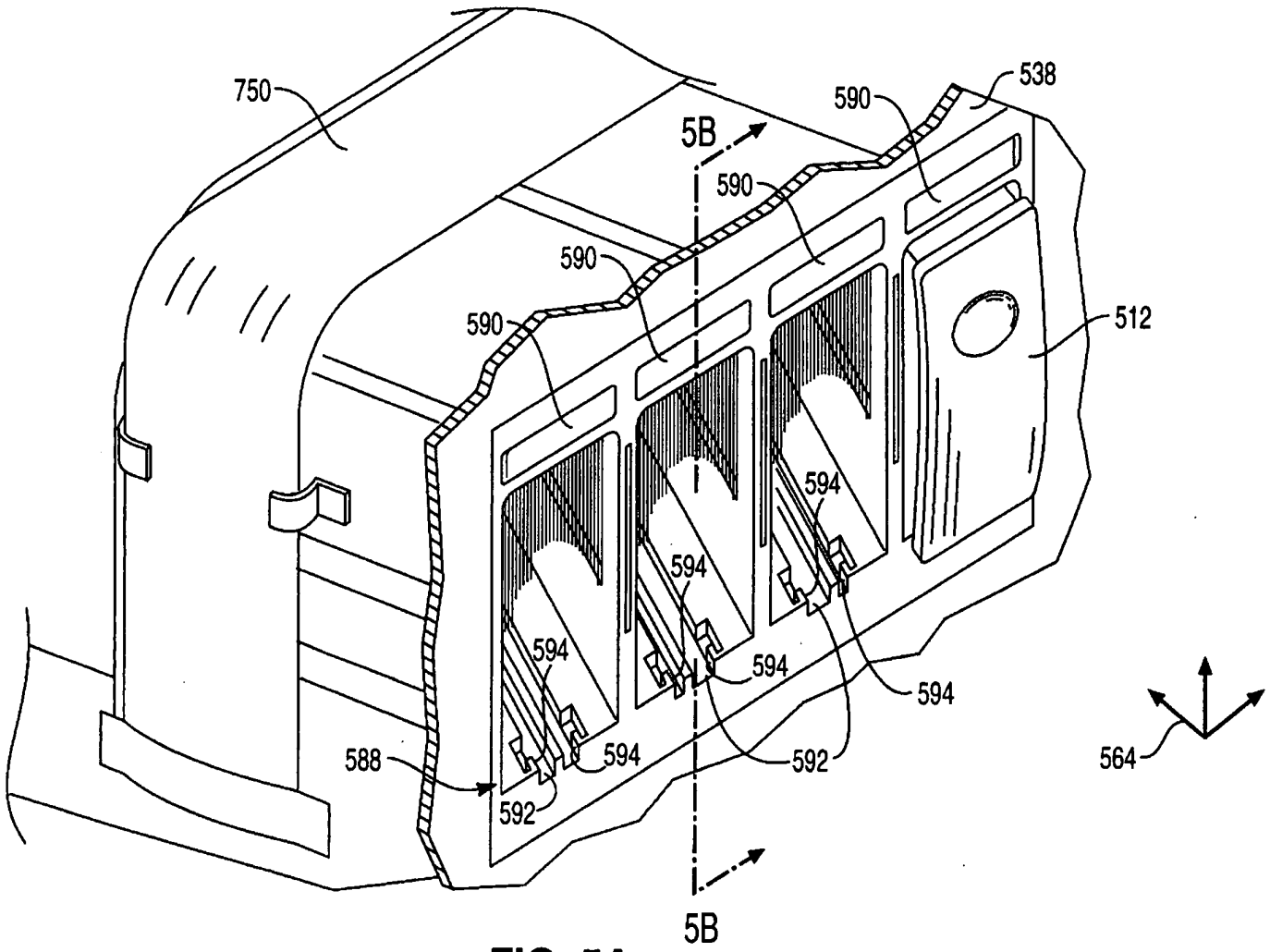
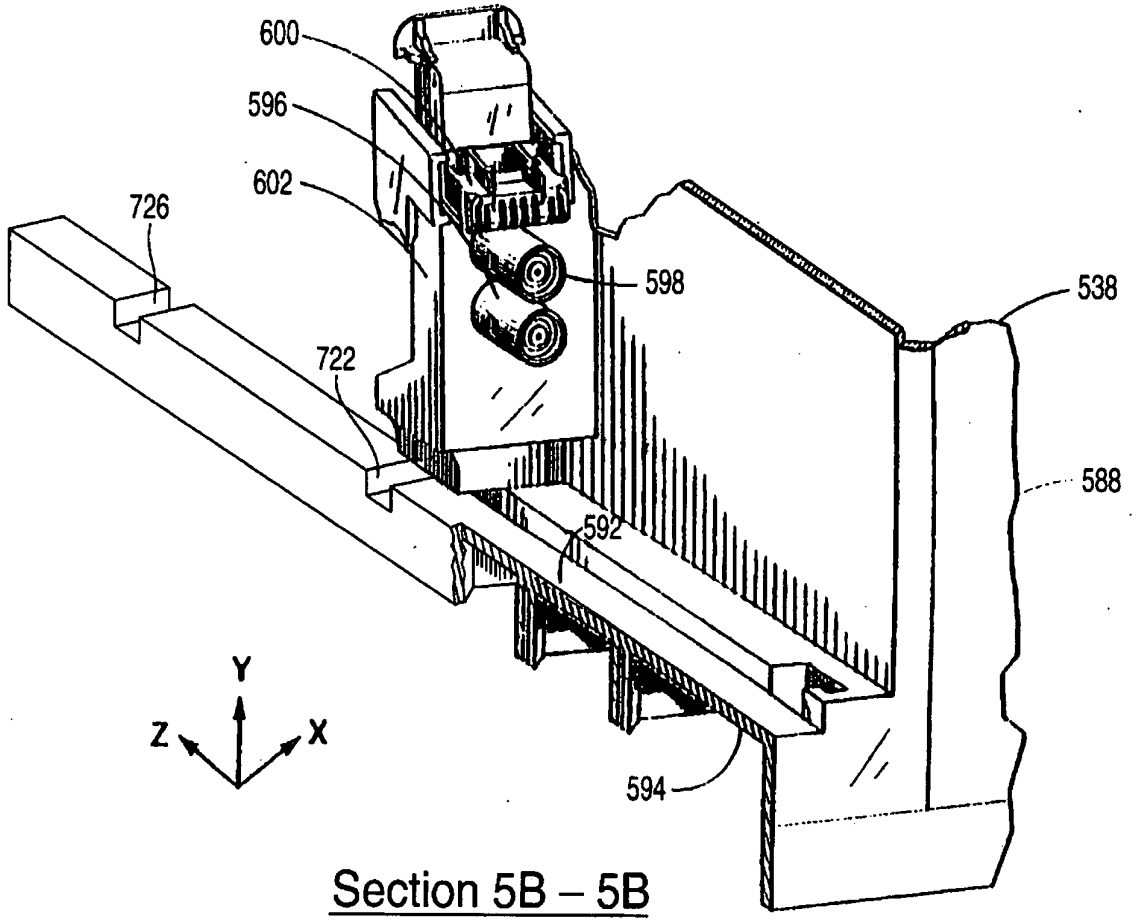

750
538
590
5B
590
590
590
512
594
594
594
594
594
588
592
592
564
5B

FIG. 5A



Section 5B – 5B

FIG. 5B

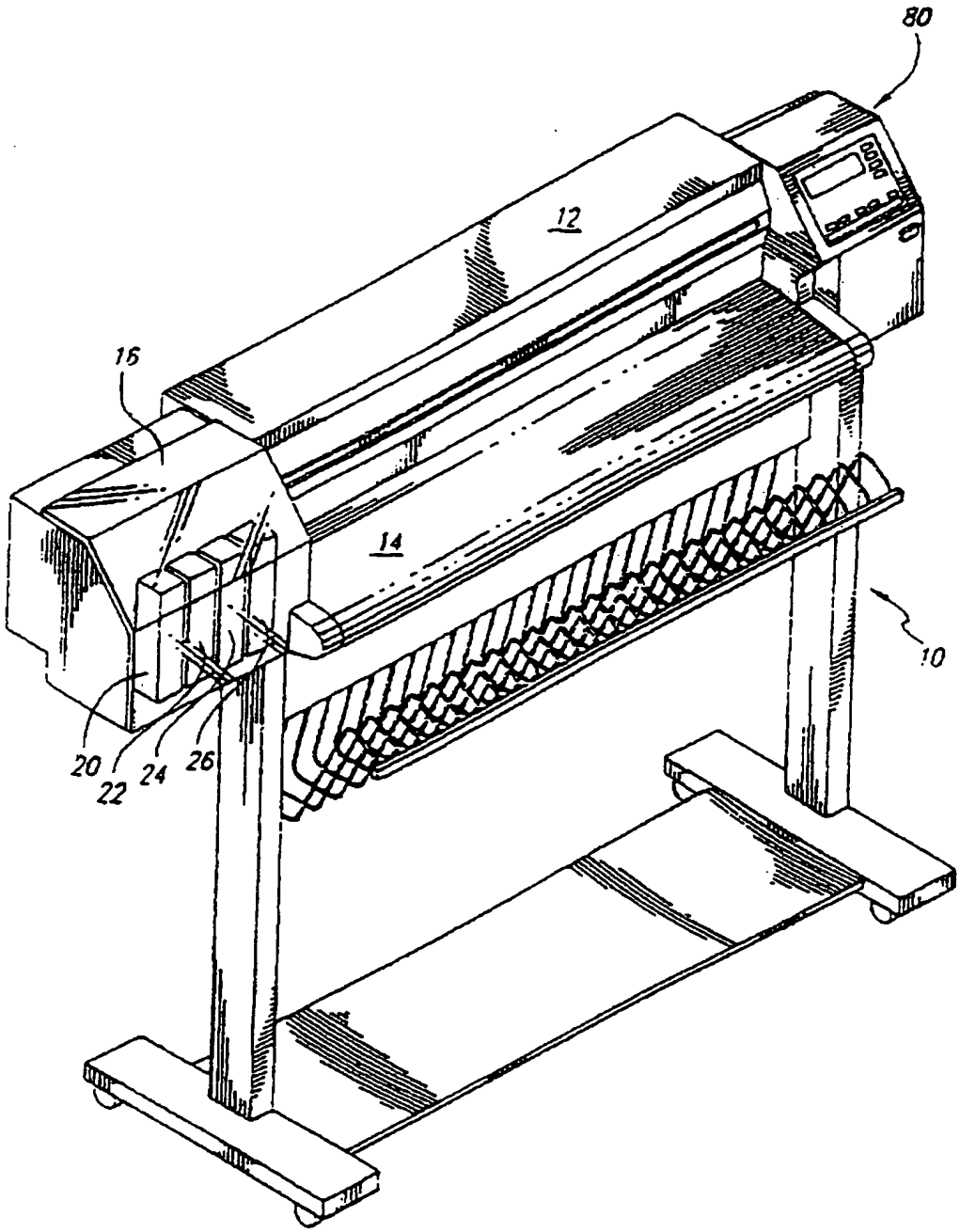


FIG. 6A

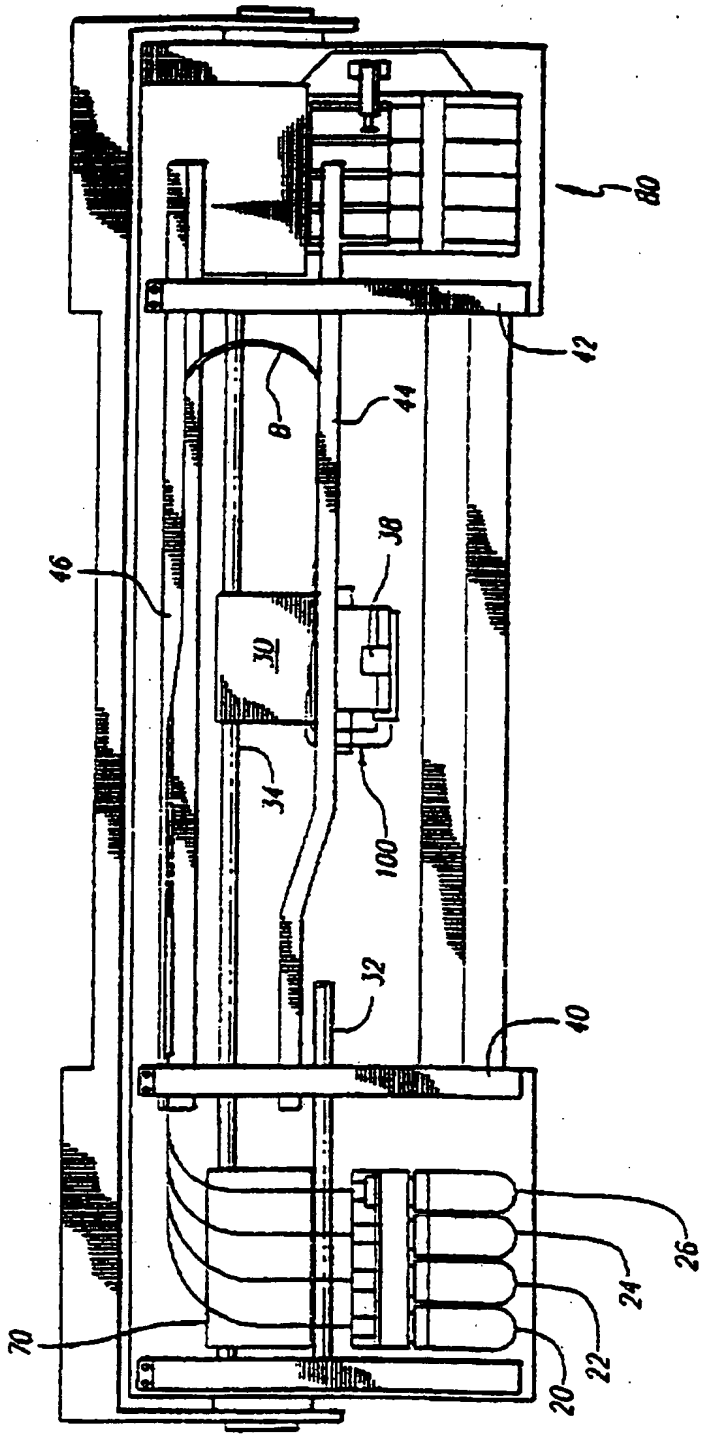


FIG. 6B

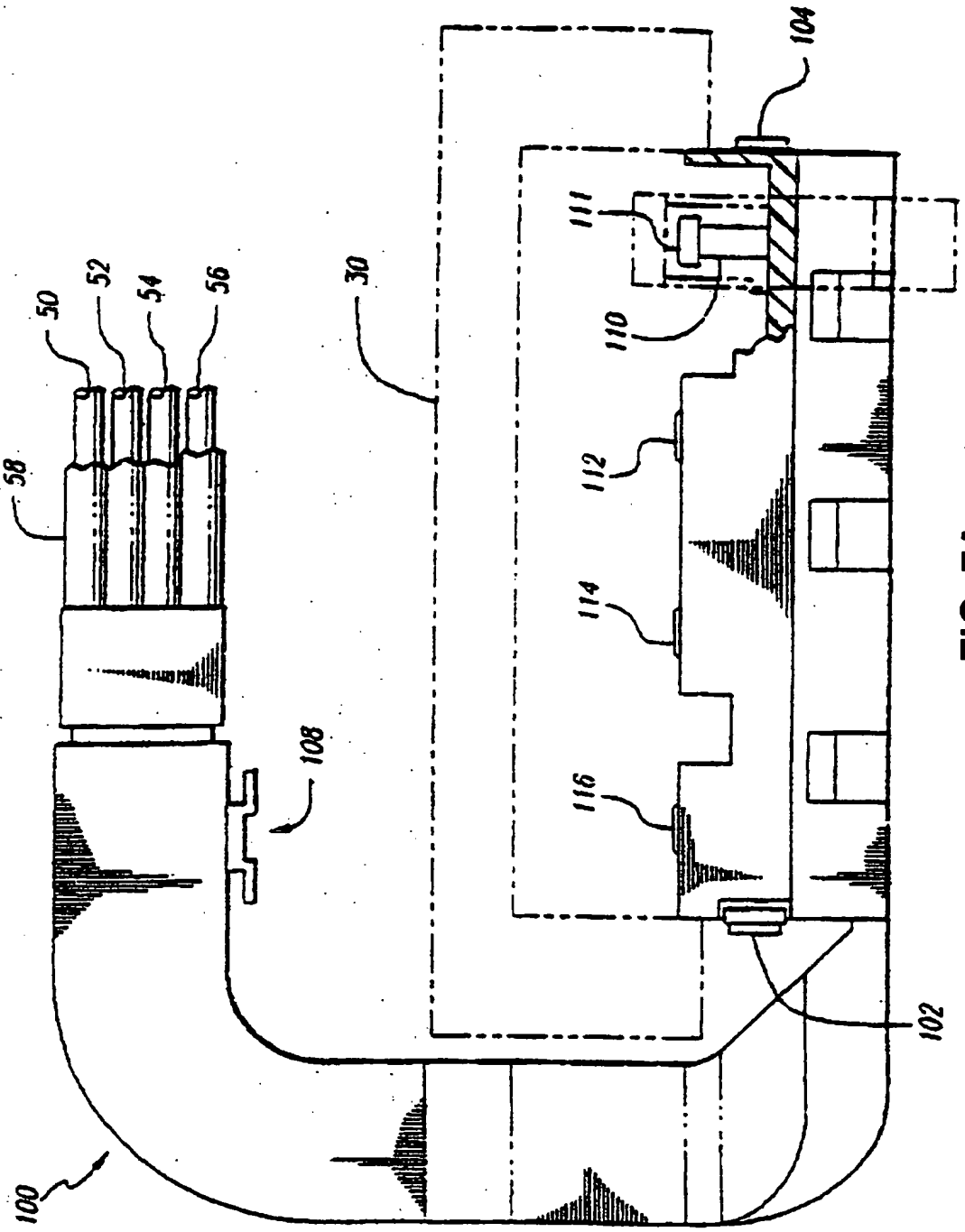


FIG. 7A

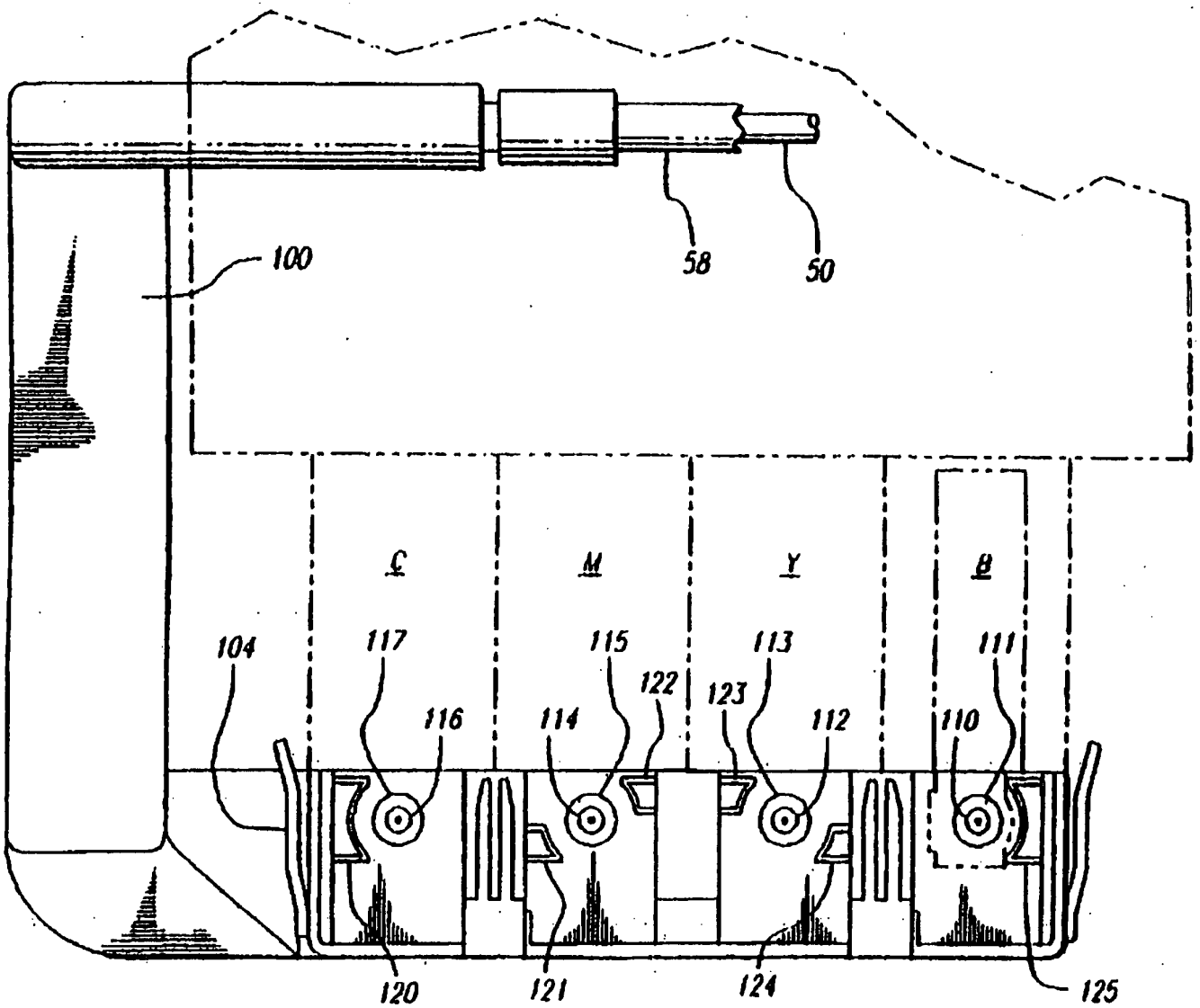

100
58
50
C
M
Y
B
104
117
116
115
114
122
123
113
112
111
110
120
121
124
125

FIG. 7B

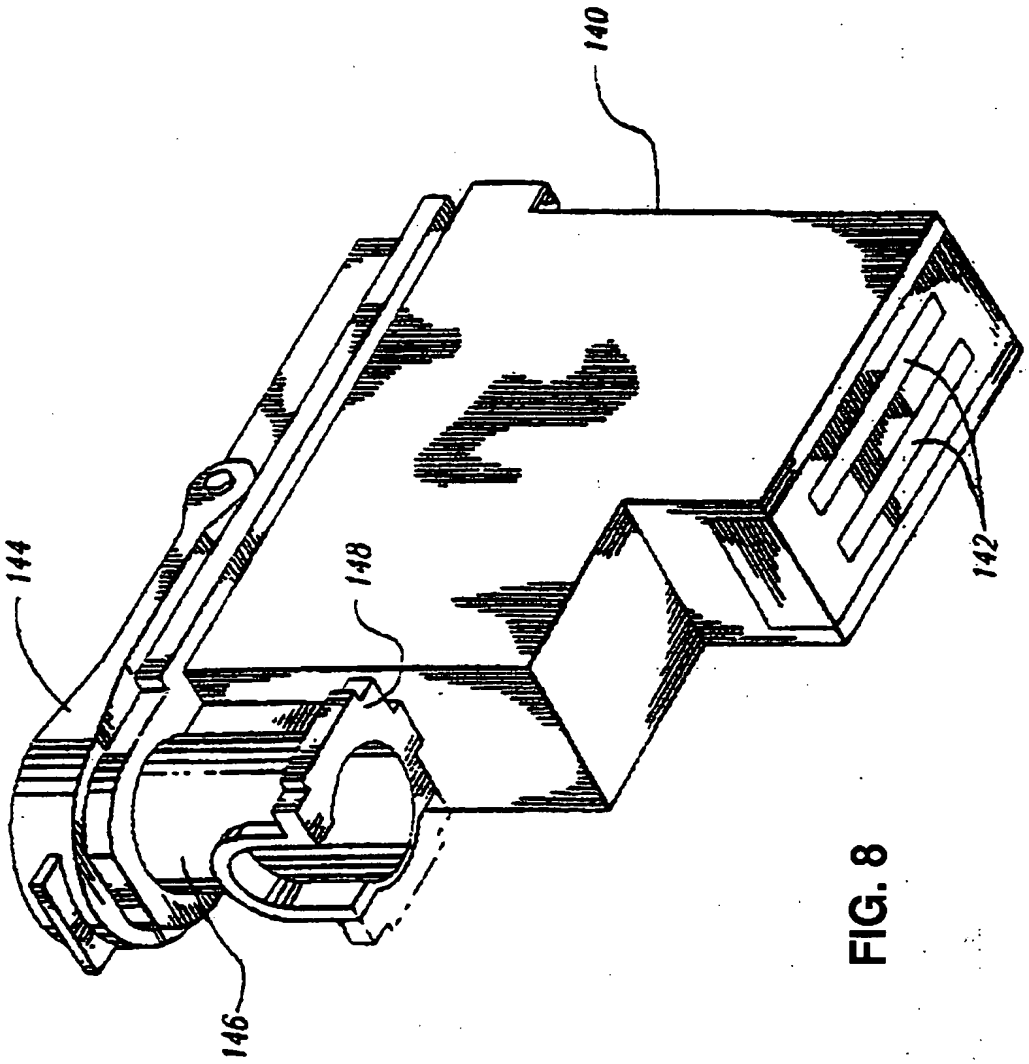


FIG. 8

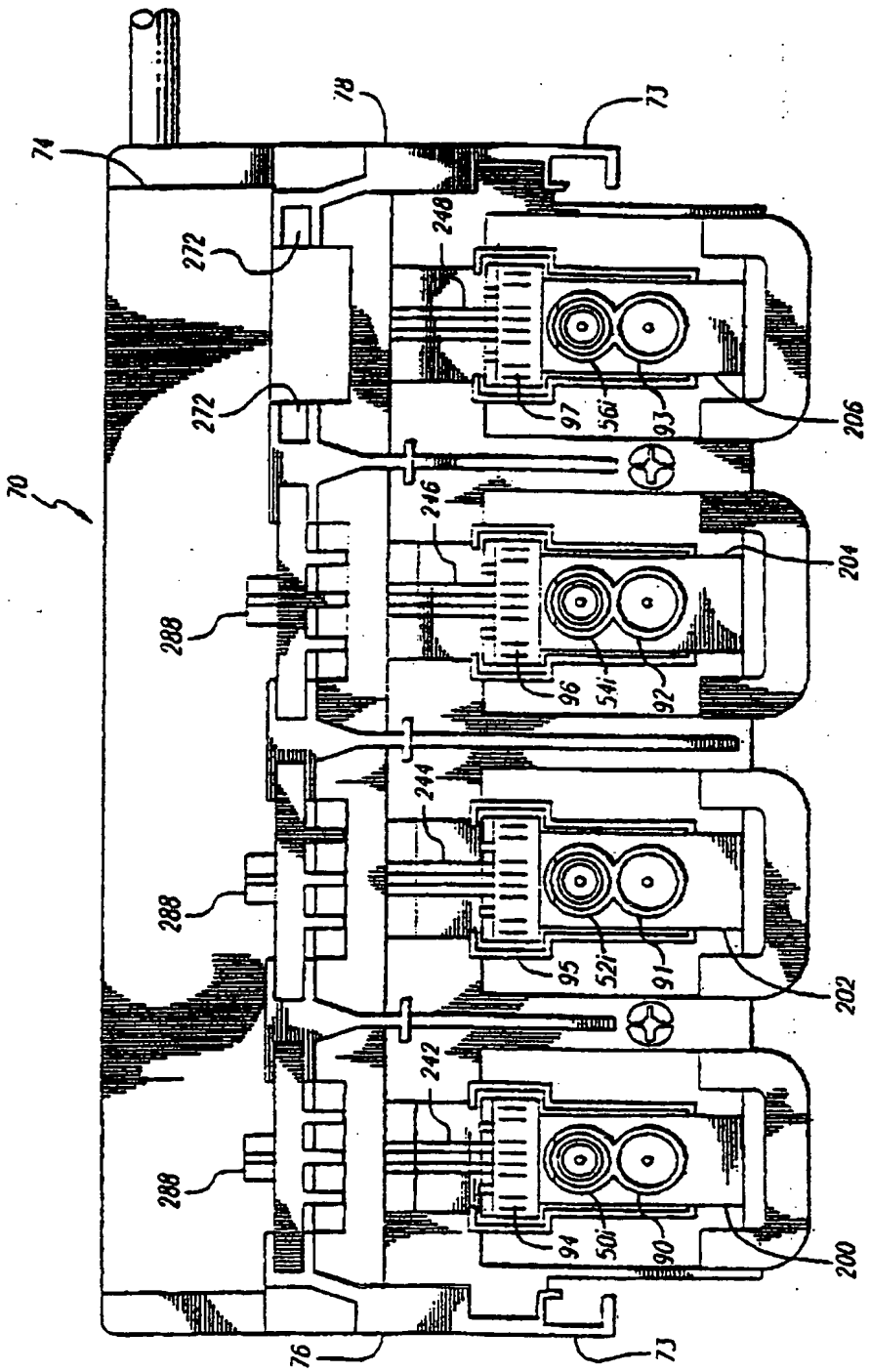

70
74
78
73
272
272
248
97
561
93
206
246
204
288
96
541
92
244
288
95
521
91
202
242
288
94
501
90
200
76
73

FIG. 9

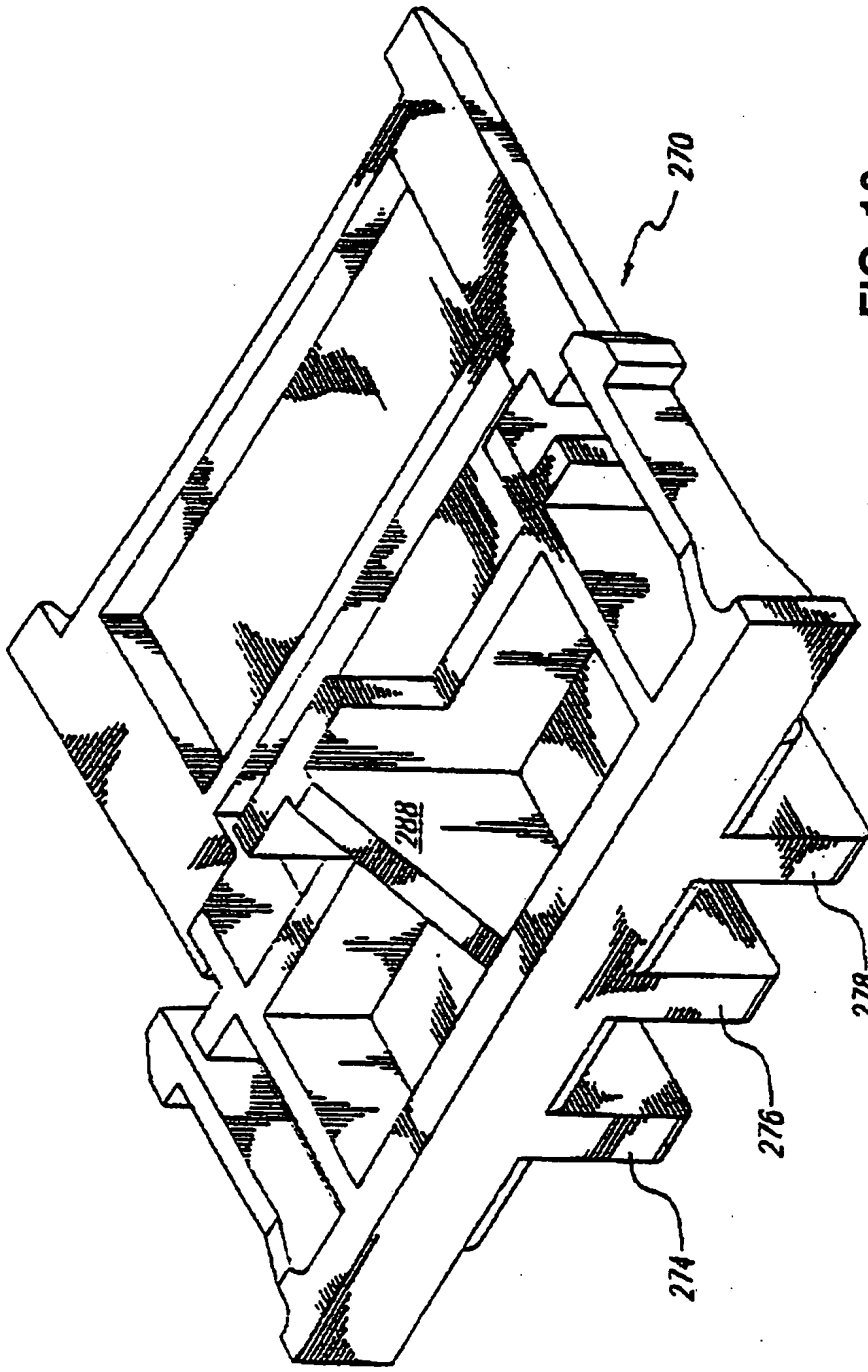


FIG. 10

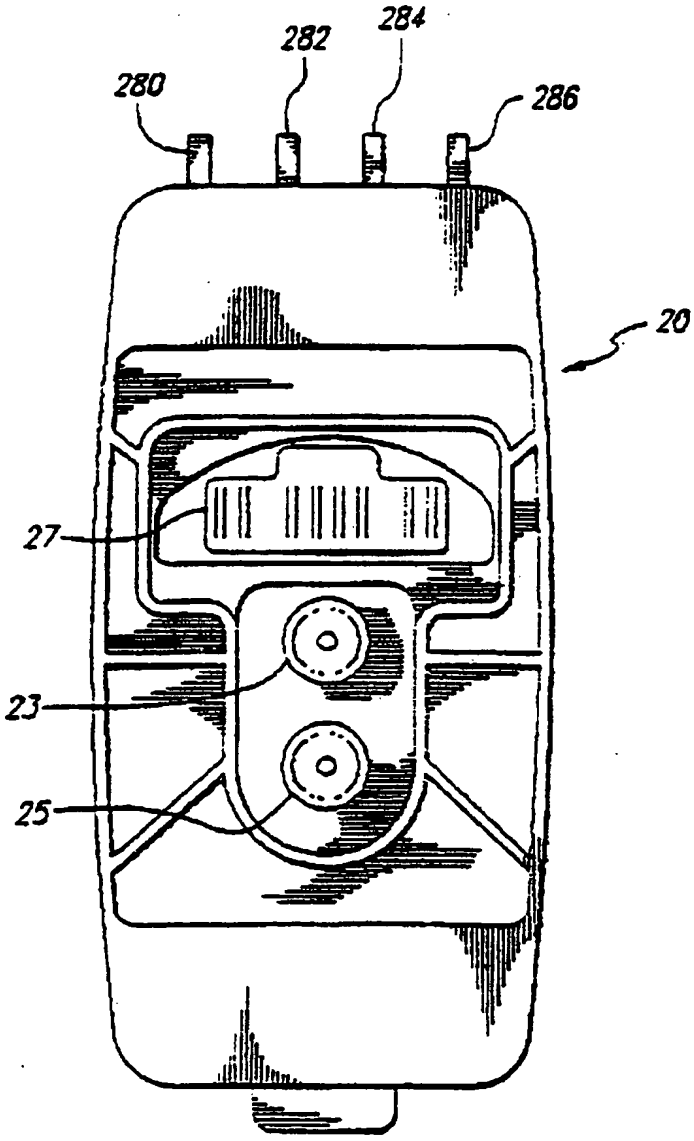


FIG. 11

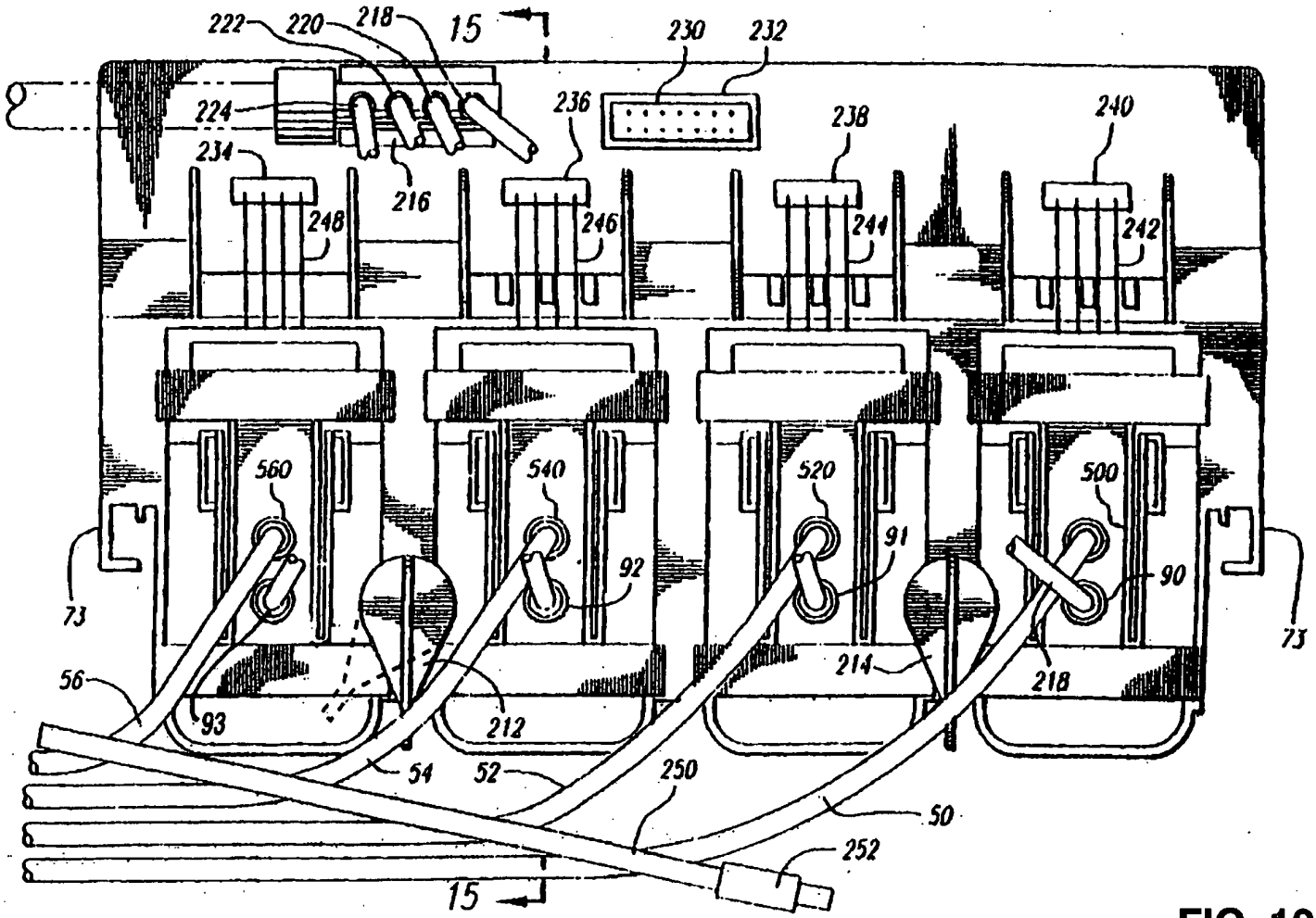

222
220
218
15
230
232
224
236
238
240
234
216
248
246
244
242
560
540
520
500
91
92
90
73
73
56
214
218
93
212
54
52
250
50
252
15

FIG. 12

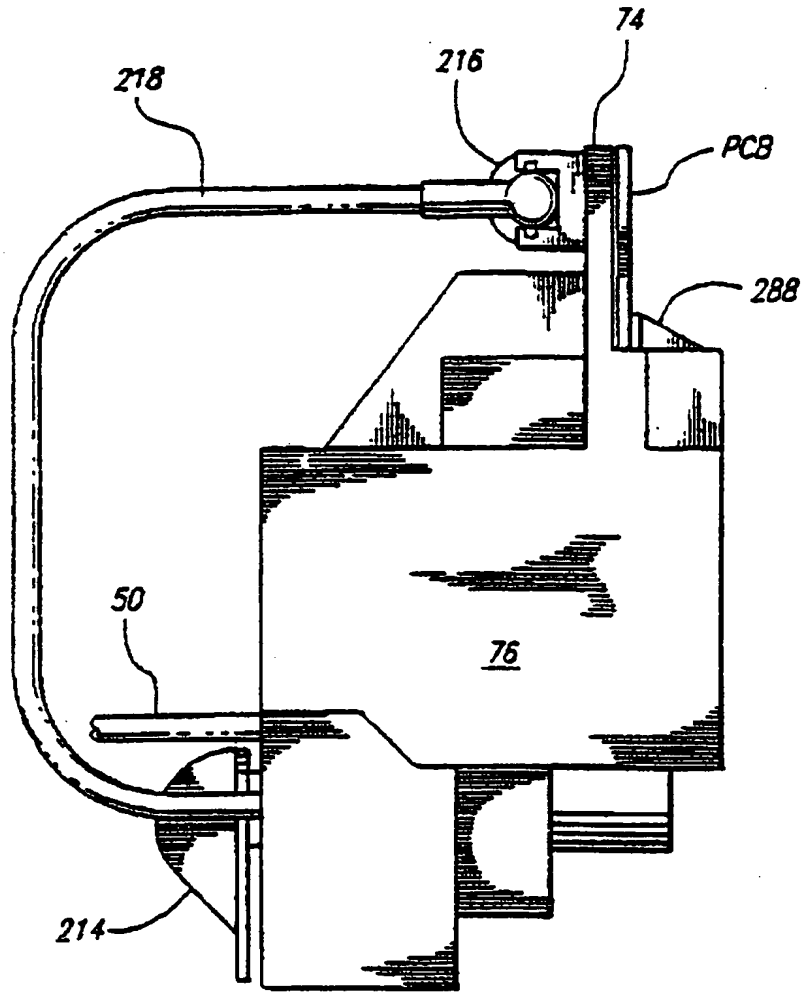


FIG. 13

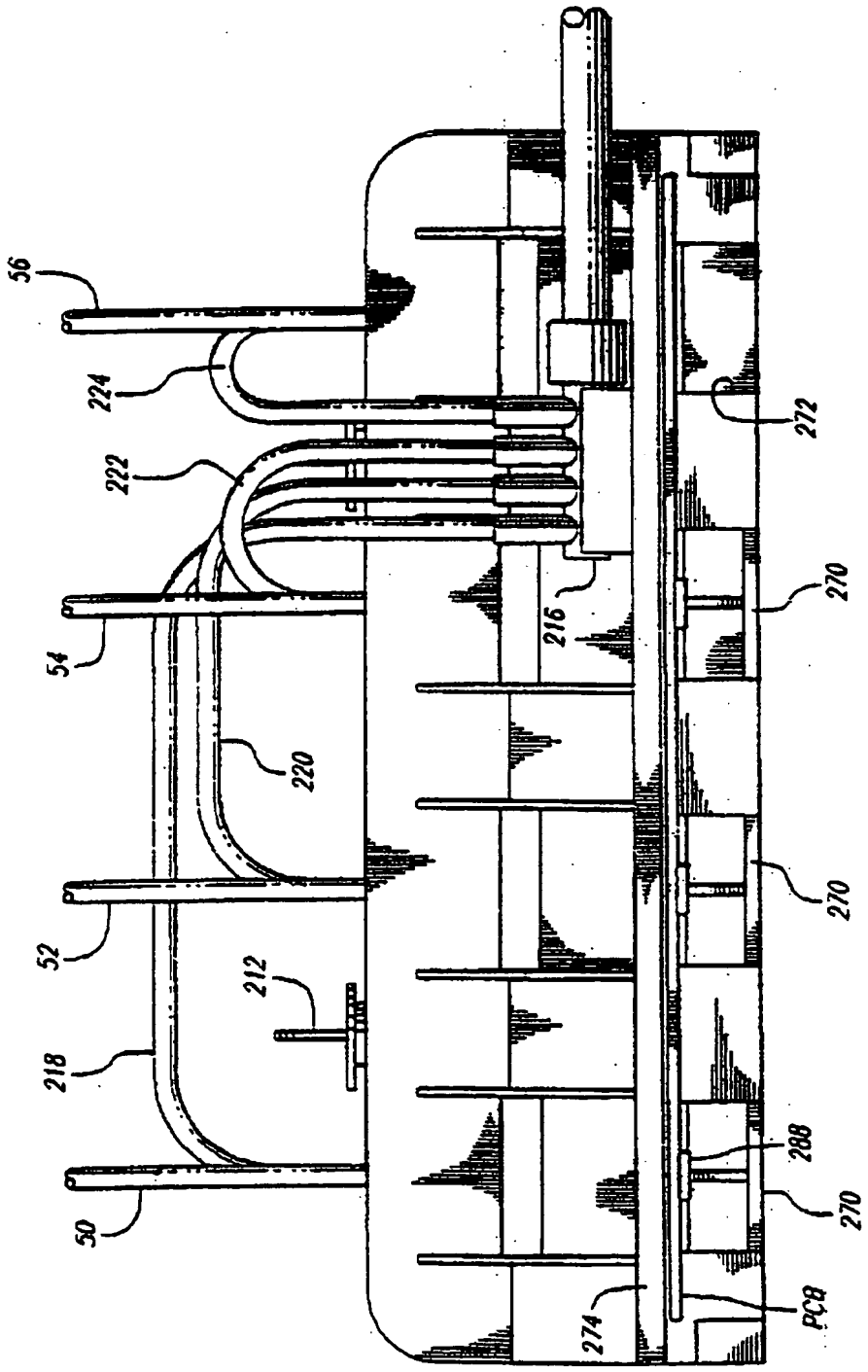

56
224
222
54
220
52
212
218
50
216
272
270
270
270
288
270
PCB
274

FIG. 14

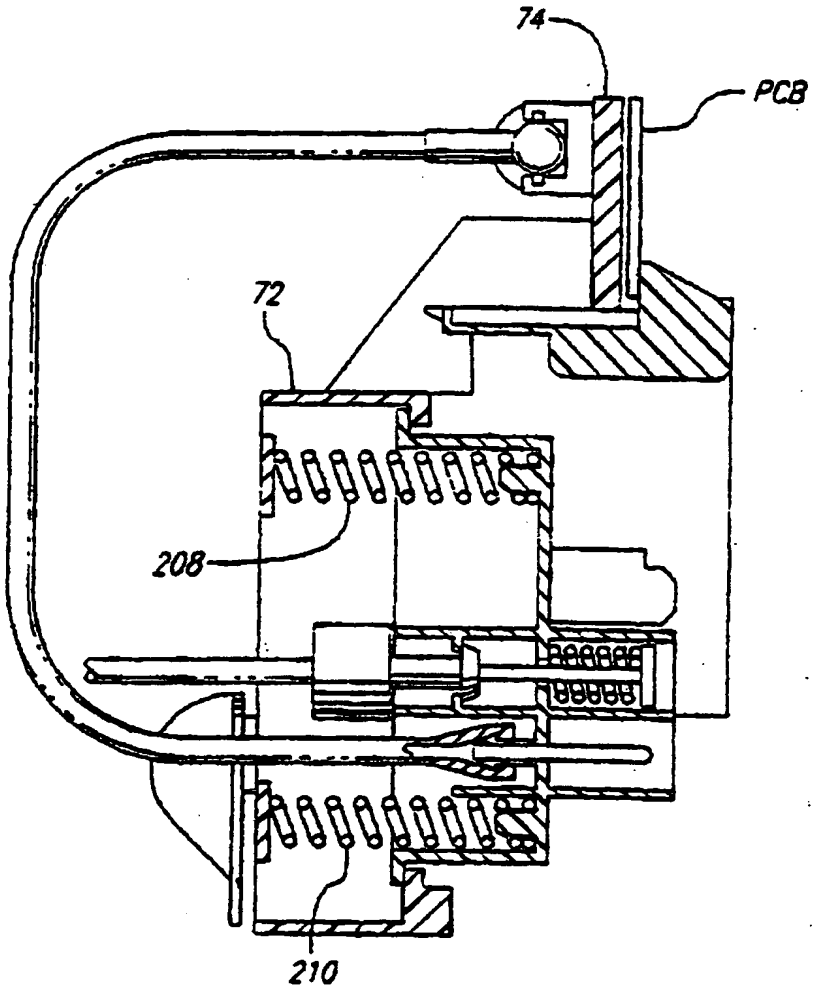


FIG. 15

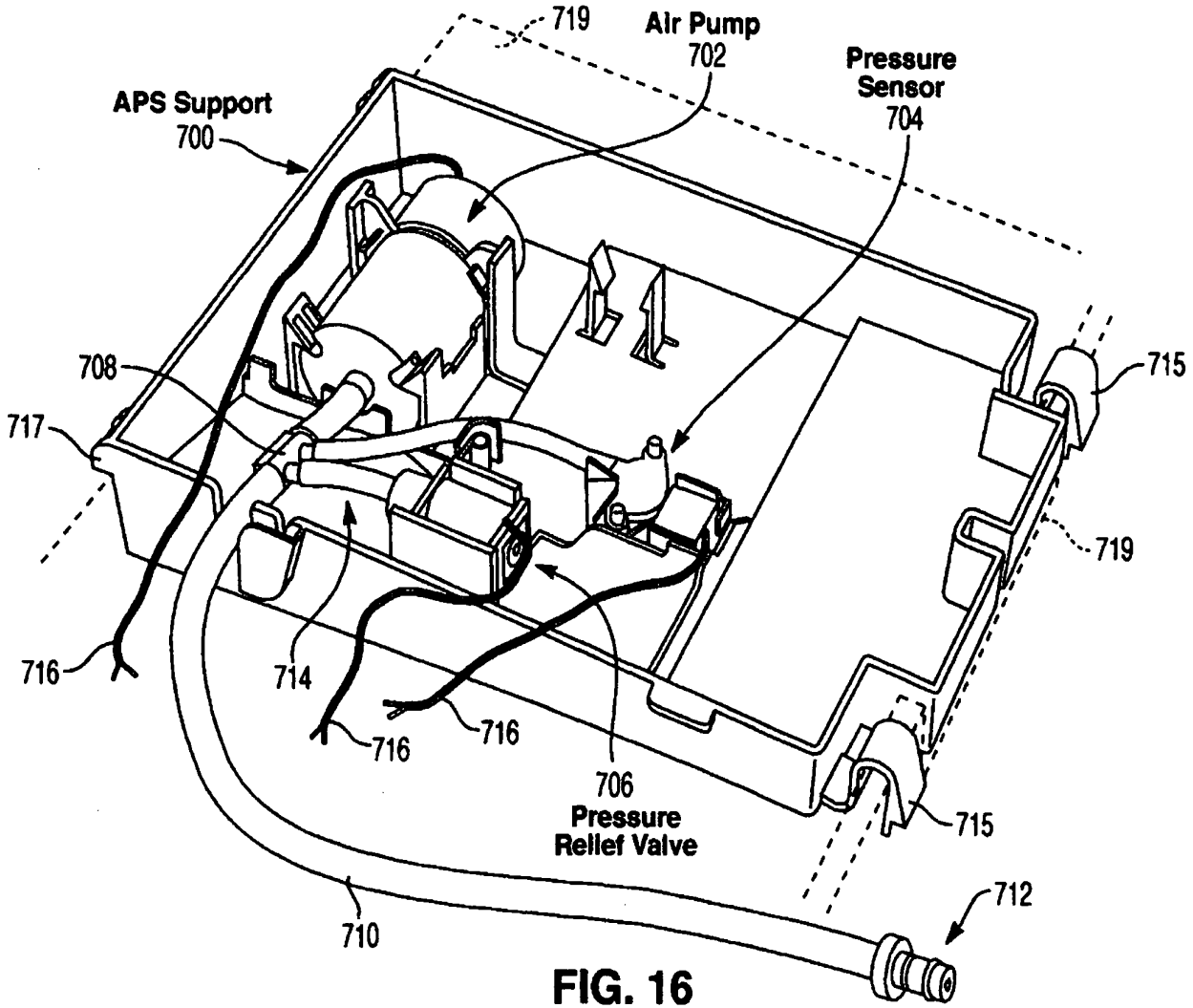

719
Air Pump
702
Pressure
Sensor
704
APS Support
700
708
717
715
719
716
714
716
716
706
Pressure
Relief Valve
715
712
710

FIG. 16

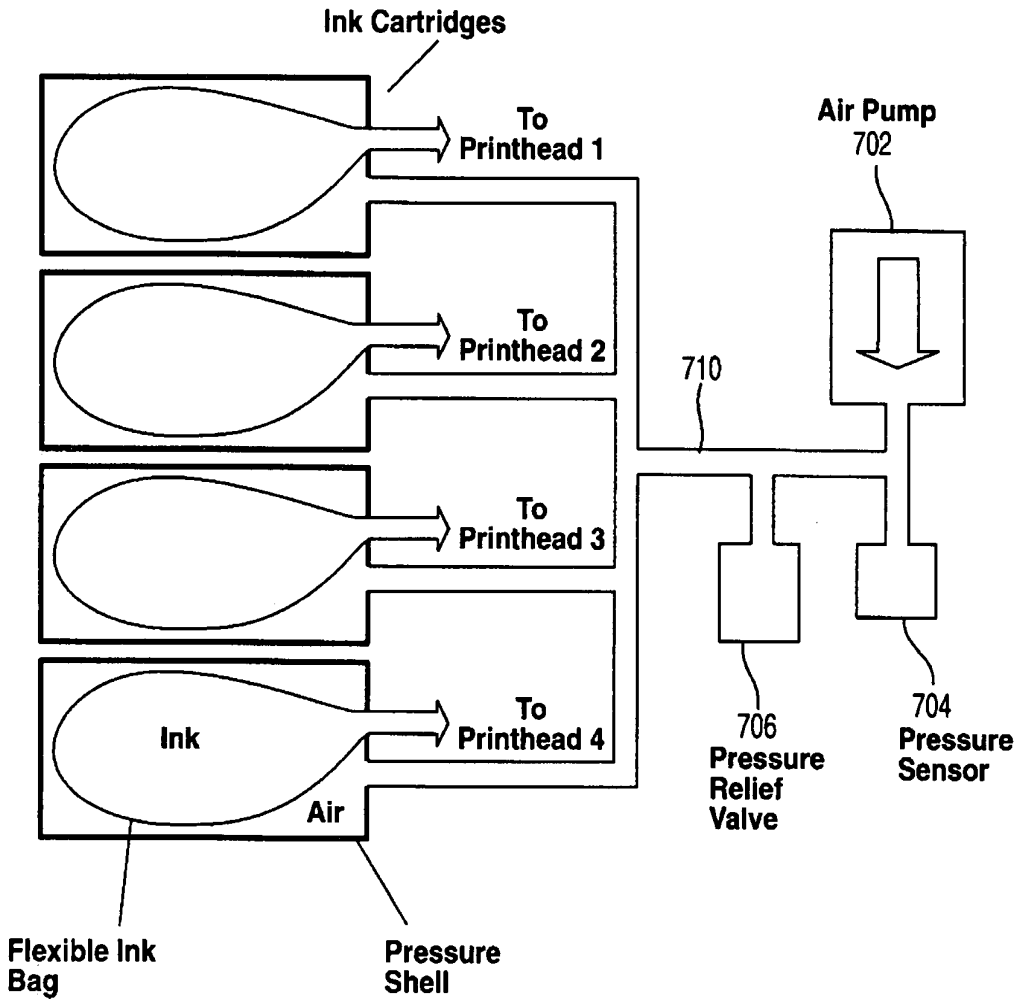

Ink Cartridges
To Printhead 1
To Printhead 2
To Printhead 3
To Printhead 4
Ink
Air
Air Pump
702
710
706
Pressure Relief Valve
704
Pressure Sensor
Flexible Ink Bag
Pressure Shell

FIG. 17

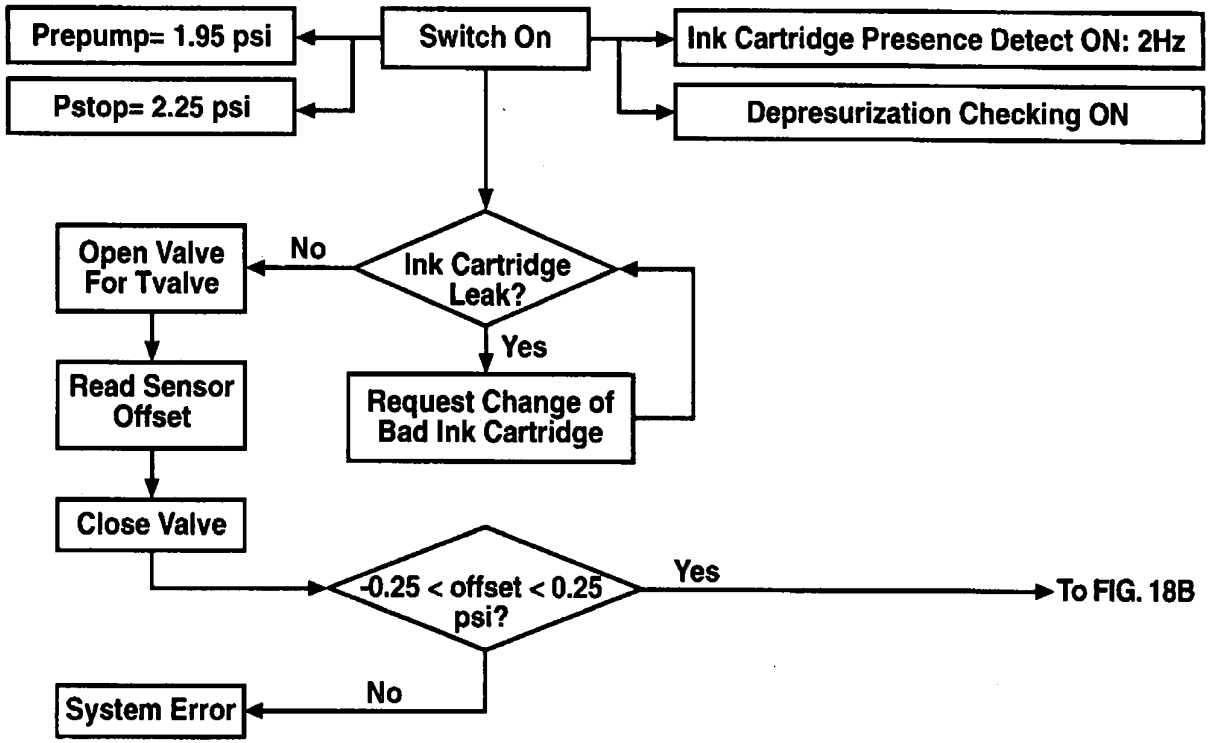

Prepump= 1.95 psi
Pstop= 2.25 psi
Switch On
Ink Cartridge Presence Detect ON: 2Hz
Depresurization Checking ON
Ink Cartridge Leak?
No
Yes
Open Valve For Tvalve
Request Change of Bad Ink Cartridge
Read Sensor Offset
Close Valve
-0.25 < offset < 0.25 psi?
Yes
To FIG. 18B
No
System Error

FIG. 18A

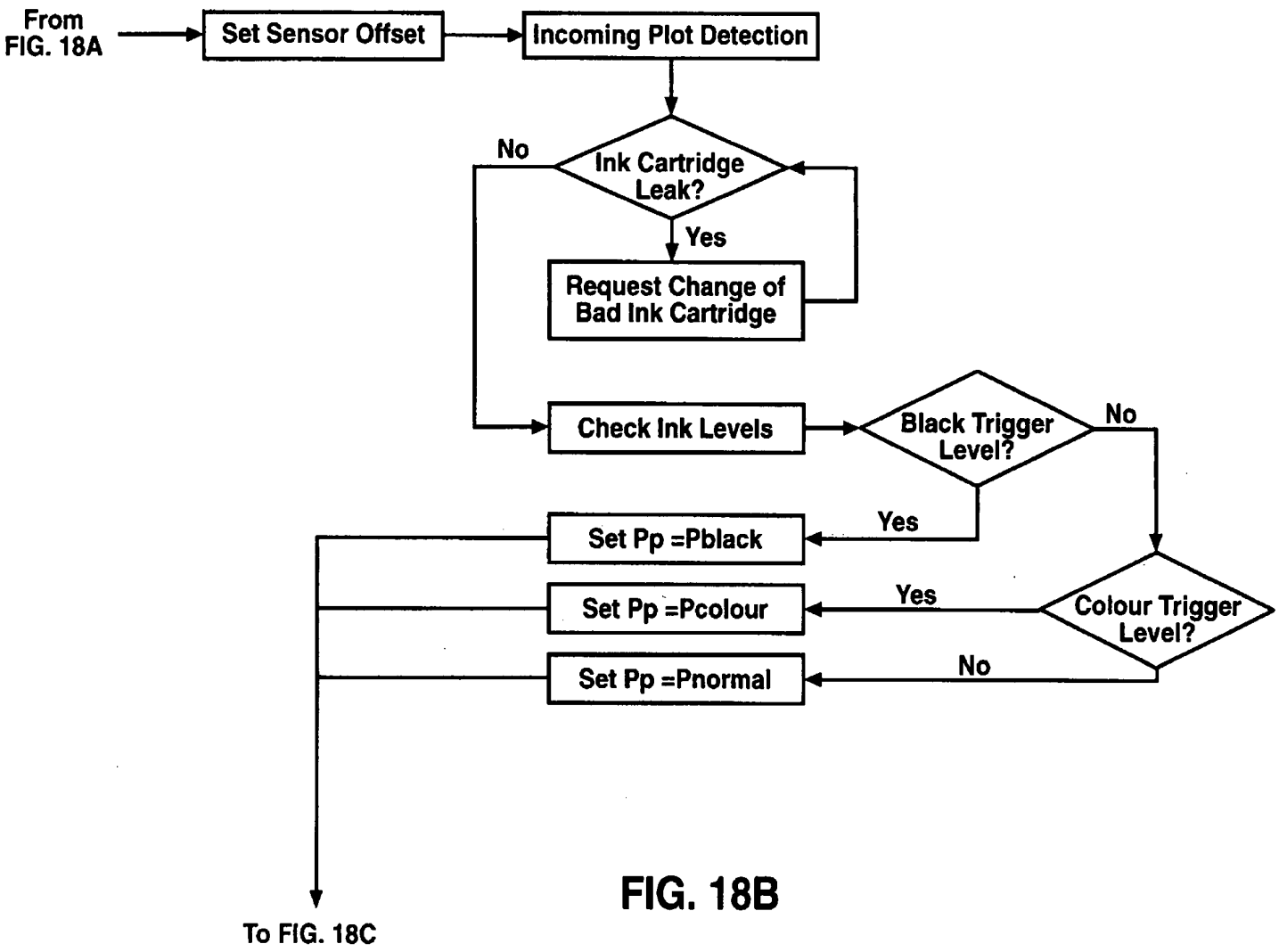

From FIG. 18A
Set Sensor Offset
Incoming Plot Detection
No
Ink Cartridge Leak?
Yes
Request Change of Bad Ink Cartridge
Check Ink Levels
Black Trigger Level?
No
Yes
Set Pp =Pblack
Yes
Set Pp =Pcolour
Colour Trigger Level?
No
Set Pp =Pnormal
To FIG. 18C

FIG. 18B

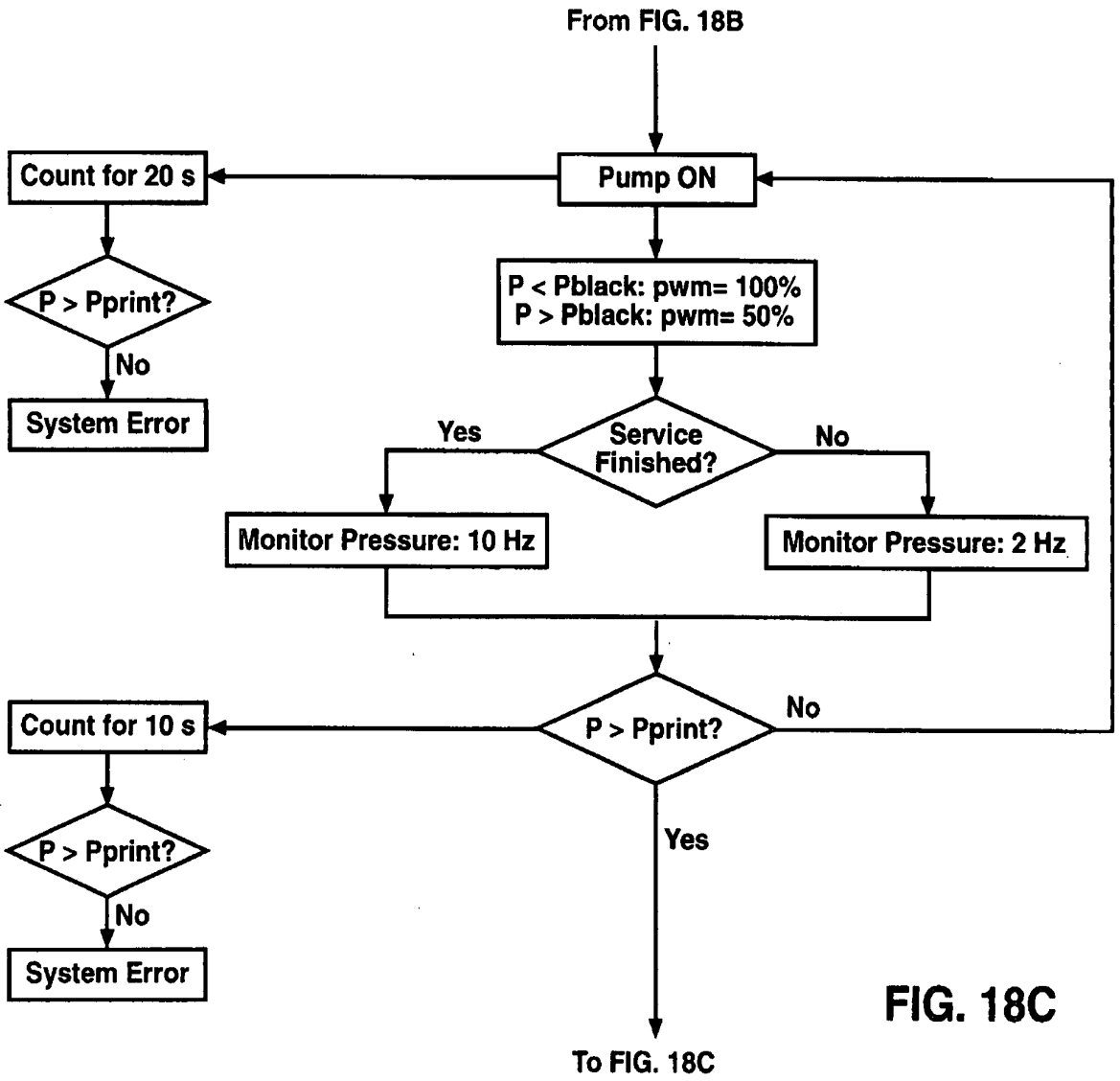

From FIG. 18B
Pump ON
Count for 20 s
P > Pprint?
No
System Error
P < Pblack: pwm= 100%
P > Pblack: pwm= 50%
Yes
Service Finished?
No
Monitor Pressure: 10 Hz
Monitor Pressure: 2 Hz
P > Pprint?
No
Yes
Count for 10 s
P > Pprint?
No
System Error
To FIG. 18C

FIG. 18C

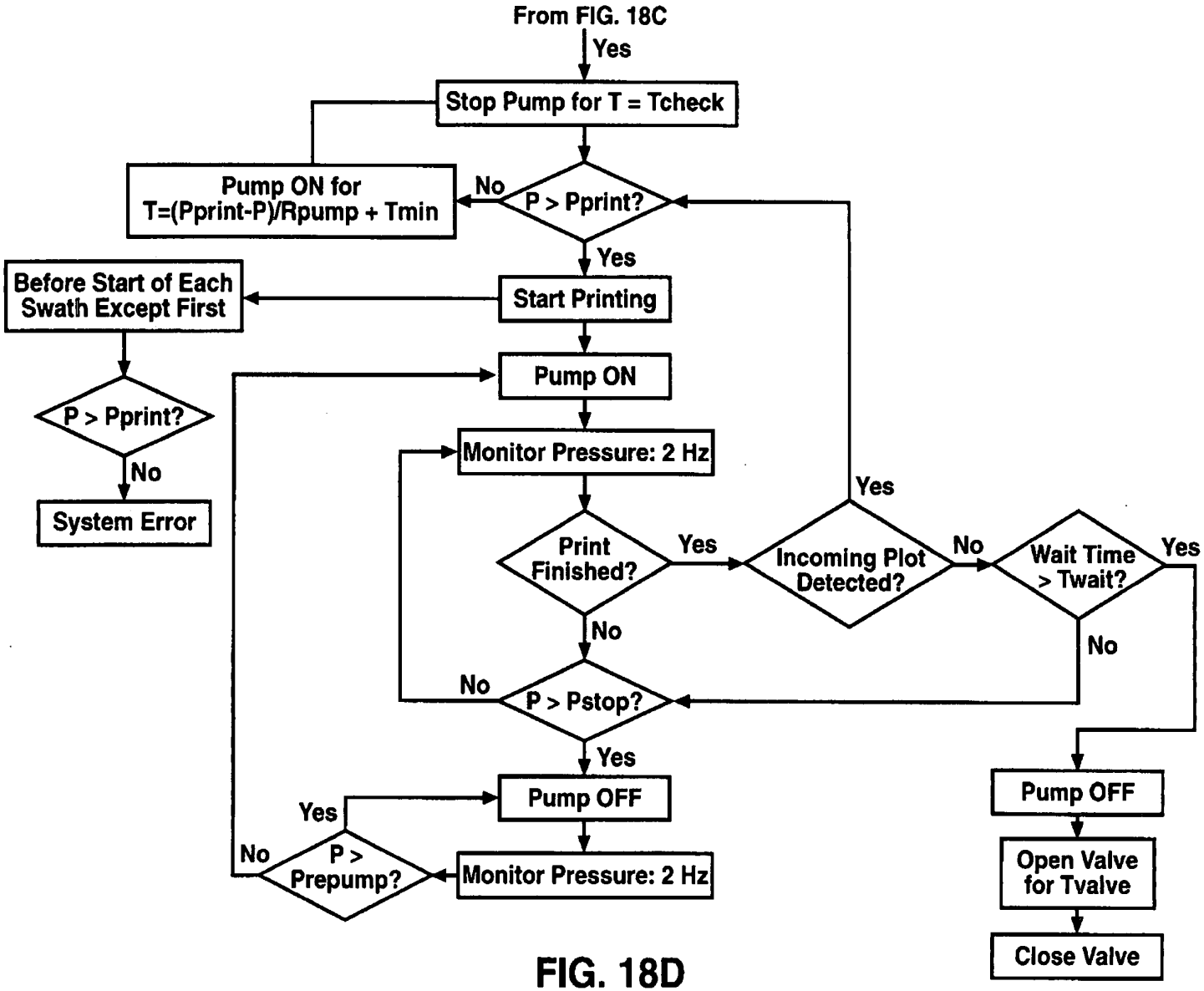

From FIG. 18C
Yes
Stop Pump for T = Tcheck
Pump ON for T=(Pprint-P)/Rpump + Tmin
No
P > Pprint?
Yes
Before Start of Each Swath Except First
Start Printing
Pump ON
P > Pprint?
No
System Error
Monitor Pressure: 2 Hz
Print Finished?
Yes
Incoming Plot Detected?
No
Wait Time > Twait?
Yes
No
No
P > Pstop?
Yes
Pump OFF
Yes
No
P > Prepump?
Monitor Pressure: 2 Hz
Pump OFF
Open Valve for Tvalve
Close Valve

FIG. 18D

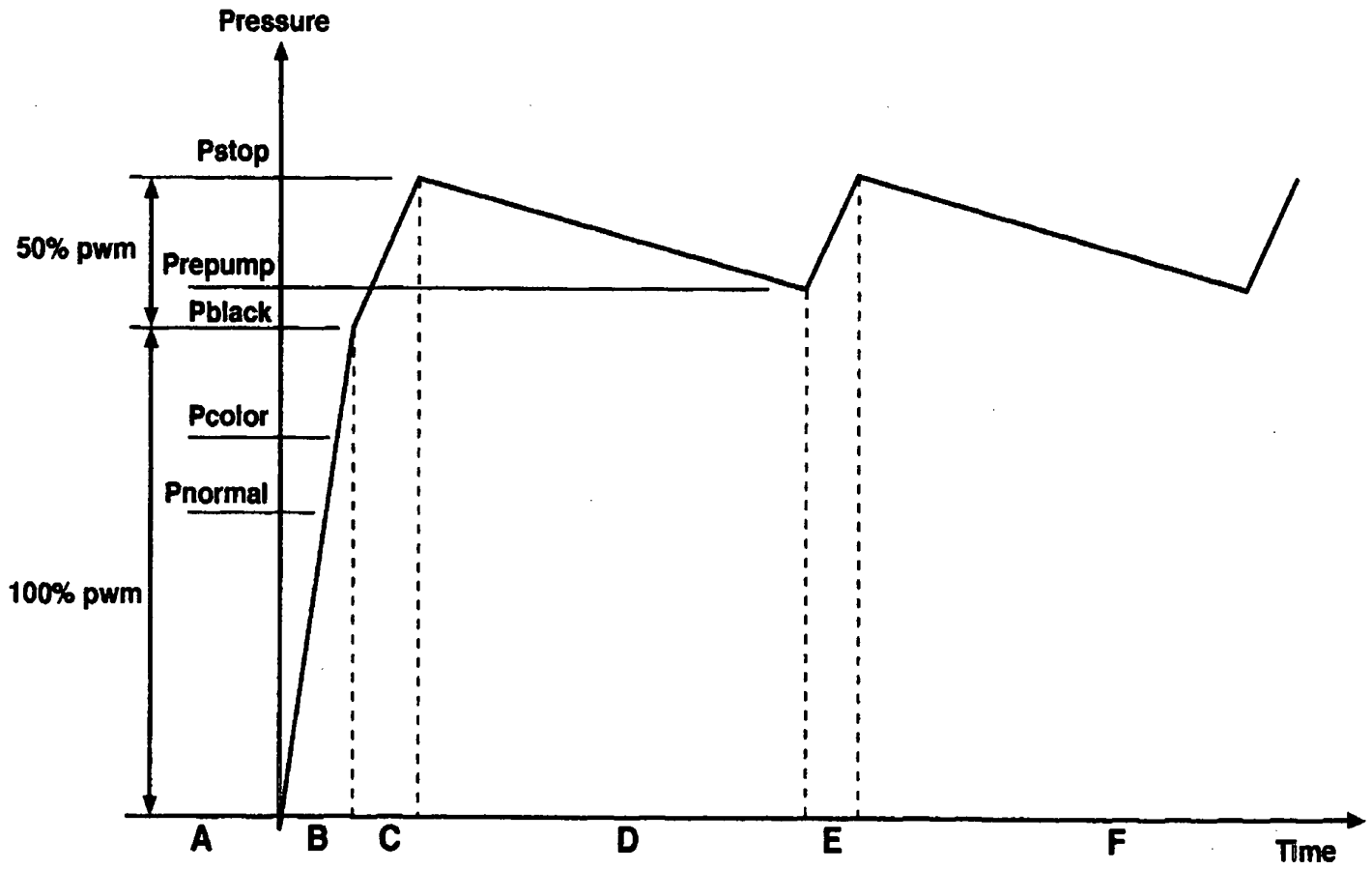

Pressure
Pstop
50% pwm
Prepump
Pblack
Pcolor
Pnormal
100% pwm
A
B
C
D
E
F
Time

FIG. 19

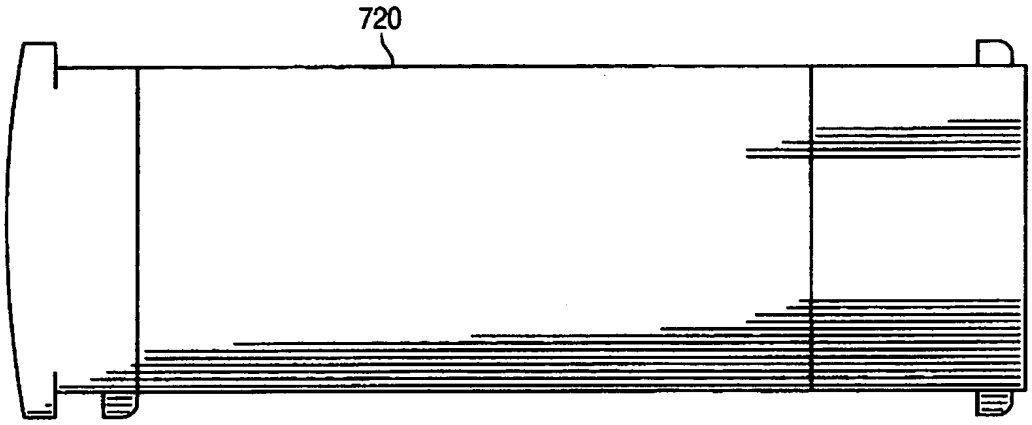


FIG. 20B

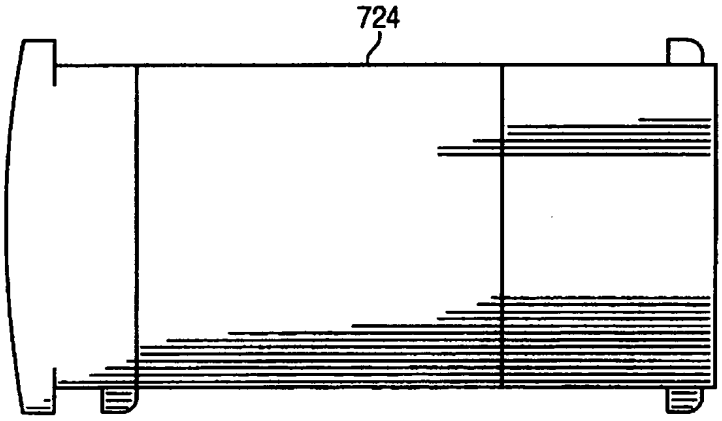


FIG. 20A

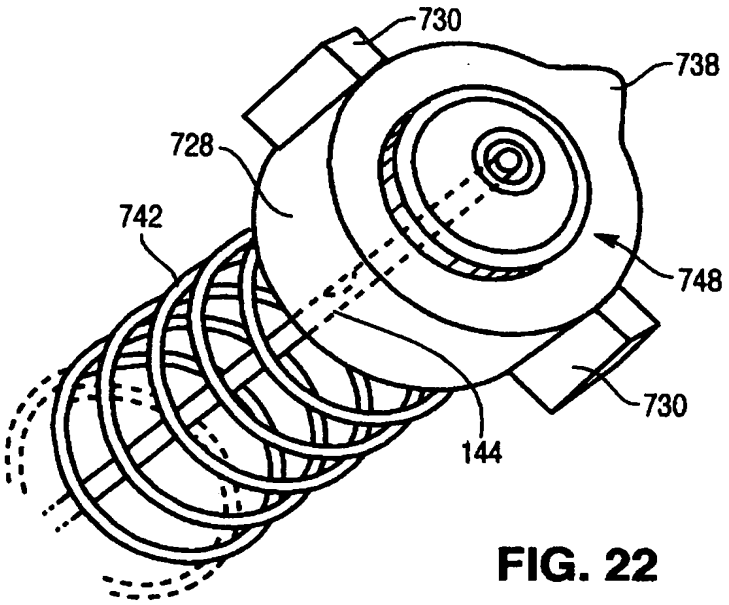


FIG. 22

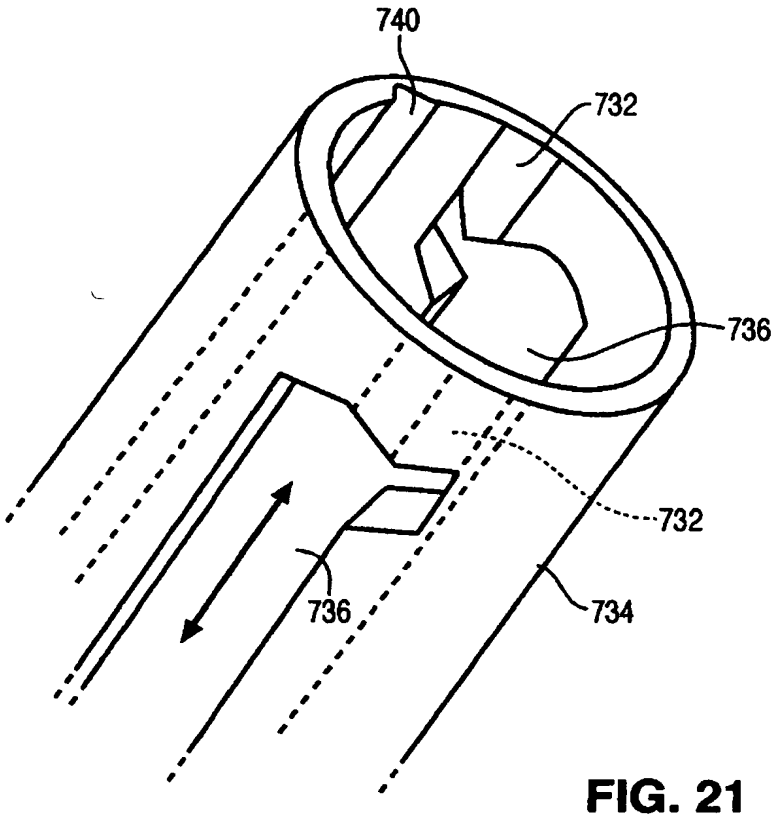


FIG. 21

Operating Mode	Pressure Relief Valve	Approximate Air Pressure
System Error	Open	Zero
New Ink System Installed– Air Purge From Ink Tubes	Open Δ/Closed	1.5 psi
Prime Printheads With Positive Ink Pressure	Open Δ/Closed	.2 psi
Replace Printhead	Open	Zero
Replace Ink Cartridge	Open	Zero
Normal Printing	Closed	2.5 psi
Overnight Non–use	Open	Zero

FIG. 23

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